DOCUMENT RESUME

ED 240 838 FL 014 191

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TITLE The Effect of Training on Pronunciation.
PUB DATE 83
NOTE 13p.
PUB TYPE Reports - Research/Technical (143) -- Journal Articles (080)
JOURNAL CIT ORTESOL Journal; v4 p69-80 1983

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Achievement Gains; Adult Learning; Arabic; Chinese; Comparative Analysis; *English (Second Language); Group Instruction; Immigrants; Individualized Instruction; Interference (Language); Japanese; Korean; Persian; Program Effectiveness; *Pronunciation Instruction; *Second Language Instruction

ABSTRACT

The effect of pronunciation instruction on the speech of 29 adult speakers of other languages (Japanese, Arabic, Persian, Chinese, and Korean) with previous training in English as a second language was studied. Pronunciation improvement was compared in three groups: one receiving group pronunciation training, one receiving individualized pronunciation instruction, and a third control group receiving no pronunciation training. All subjects' speech was taped before and after the eight-week pronunciation course and evaluated by five judges. Results showed no significant difference in pronunciation improvement between the trained and untrained groups or between the group-trained and individually-trained students. However, the entire group showed some pronunciation improvement in the course of the study. This suggests that improvement in pronunciation occurs over time, but not necessarily as a result of formal training. (MSE)

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THE EFFECT OF TRAINING ON PRONUNCIATION

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ABSTRACT

This study is concerned with the effect of training on the pronunciation of adult speakers of English as a second language who have initially studied English in their own countries and then enrolled as students in ESL in English-speaking countries. Teachers of ESL have not always been in agreement concerning the effectiveness of training on the pronunciation of these students. Some reports of teaching methods assert that training is effective. Other reports say that since pronunciation is difficult to change, little improvement will be seen in these adult speakers, as a result of training. There is little systematic research on the question. It is the purpose of this investigation to work toward a clarification of the issue by means of a controlled study. To test the effectiveness of pronunciation training, twenty adult ESL students were evaluated before and after eight weeks of pronunciation training. A control group of twelve students received no training. Speech samples before and after the eight-week period were obtained for each subject. Judgements of the pre- and post-speech were made, and the results were subjected to statistical analysis. Results indicated no significant difference in improvement between the training group and the control group. If specialized training in pronunciation produces no perceptible results, it may be that ESL teachers should turn their attention elsewhere. Further research is needed.

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1. The Problem

Does training improve the pronunciation of the adult speaker of English as a second language? Some writers believe that pronunciation problems are so ingrained that attempts at retraining yield little result. There seems to be considerable agreement that the pronunciation of the adult speaker of English as a

second language is the single aspect of his English most resistant to change. Scovel (1976) suggests that "there is a maturational constraint on the learning of a foreign phonology in adulthood; this barrier is both universal and insurmountable." Although Krashen (1973) argues that such constraints do not prevent second language learning, Scovel (1969) maintains that the onset of cerebral dominance at around age twelve inhibits acquisition of native-like pronunciation. Allen (1971) asserts that students' mastery of the intonation system of English is often inadequate. Asher and Garcia (1969) conclude that there is small chance of acquiring a near-native pronunciation after the age of thirteen. According to Lee, McCune, and Patton (1970) there may be a plateau beyond which additional formal practice produces little transfer to conversational speech. One can speculate about the reasons for difficulties in improving pronunciation. Several possibilities are suggested later in this paper.

In spite of the difficulty in producing changed pronunciation, instructors continue to expend effort in this direction, and they present reports of teaching methods which imply and even state that the methods are successful. Journal articles which describe teaching methods for pronunciation are based on the assumption that those methods produce results. What is lacking, however, is objective evidence of the results. Methodology reports which state only, "It worked," should be viewed with skepticism. To what extent did it "work"? What were the behaviors that demonstrated that it worked? Who judged that it worked? What is meant by "worked"? Would an absence of training have produced the same results? These are questions that should be answered. The judgement of whether an instructional strategy worked is often left to the instructor himself. His judgement of the effectiveness of his training procedures in a pronunciation class is unlikely to be objective, because of his own auditory adaption to the speakers' pronunciation. The students may not have improved their pronunciation; instead, the instructor may have improved his listening.

An intensive search of the literature revealed very little in the way of systematic investigation of the effect of training on pronunciation, in the adult learner. Pronunciation instruction is often part of the standard ESL curriculum, but how to test the result of this training has not been established. It is the purpose of this pilot study to investigate the results of pronuniciation training, through a controlled experiment.

2. Method

To accomplish this purpose, an experimental group who received training and a control group who received no training were tested, before and after an eight-week period. The speech of each subject was taped, so that a pre-training speech sample and a post-training speech sample were obtained for each subject. These pre- and post-tapes were judged by five judges. Unaware of which was the pre-tape and which was the post-tape, the judges each made a decision as to which tape sounded better, for each subject. The paragraphs below contain a detailed description of the study.

3. Subjects and Procedure

Subjects in this investigation were 29 adult students at the English Language Institute at Oregon State University. Their native languages were Japanese, Arabic, Persian, Chinese, and Korean. They were, for the most part, college-bound students studying English for the purpose of gaining admission to an American college or university. All had had English instruction in the schools of their countries, before coming to the United States. They were referred by their regular English Language Institute instructors as needing help in pronunciation.

The original question being asked was, "Is there greater improvement in pronunciation in students who received training, compared to students who received no training?" This question was expanded, as a result of discussion with members of the staff of the Oregon State University Speech and Hearing Clinic. Clinic

facilities for individualized, one-to-one (one teacher to one student) speech therapy are available to the English Language Institute students, so it was decided that individualized training would be conducted with one section of the experimental subjects, and group training would be conducted with another section. Thus, two kinds of training were being studied, as well as the question of whether training itself produces results. The two kinds of training were individualized training and group training. The questions being asked were: (1) Does training improve pronunciation? (2) Is there a difference between the amount of improvement shown by students trained by individualized methods and that shown by students trained by group methods?

Thirty-two students comprised the original sample. The students were assigned to an experimental (training) set and a control (no training) set at random. Then the experimental set was divided into linguistically homogeneous subsets, Oriental, Arabic, and Persian. From each of these linguistically homogeneous sets, subjects were assigned at random to two groups, one of which received group training (n=12) and one of which received individualized training (n=10[1]).

Pre-training speech samples were obtained for each subject. Under controlled acoustic conditions, each subject was asked to read aloud, and his voice was recorded on tape. The material read was from the Accent Inventory (Prator and Robinett 1957). In addition, the examiner taped each subject in a conversation about a familiar topic, such as his family or a holiday in his country. Thus, a two-minute sample of speech was obtained for each subject. At the end of the eight-week period, another sample of speech was obtained, under similar acoustic conditions, using the same content. The samples were later found to be unnecessarily long and were cut to approximately 45 seconds.

The eight-week training period took place immediately after the pre-tapes were obtained. The group training was conducted by an ESL teacher, and the individualized training was conducted by upper-level speech pathology students, under the direction of a

graduate assistant trained in speech therapy methods. Training procedures included modeling by the instructor, auditory discrimination exercises, and pronunciation drills. Absences reduced the expected two hours per week to less than that, in some cases. A subject who received less than five hours of training was excluded from the data analysis. The average number of training hours received by the group training subjects was 12 2/3. The average number of training hours received by the individualized training subjects was 8 1/3 hours. At the end of the testing, data for 30 subjects were obtained. A subject whose tapes contained severe acoustic distortion was excluded from the data analysis. Thus, data for 29 subjects were used in the analysis.

4. Judging the Speech Samples

To evaluate the speech samples, pair comparisons were made. (This will be explained below.) Five judges were selected, on the basis of the following criteria: maturity, willingness to engage in the pair comparison decisions, lack of previous knowledge of the subjects, and willingness to approach the task seriously. The judges were two members of the Oregon State University Speech Communication faculty, one member of the Psychology faculty, a senior student majoring in Business Administration, Music, and Drama, and an ESL instructor.

To accomplish the evaluation task, the judges were seated in a large, quiet room, equidistant from an extension speaker attached to a tape recorder. The extension speaker served to amplify and clarify the sound of the speech samples that were to be played. Judges were given a pencil and a sheet of paper containing empty squares indicating where their tally marks should be placed. The following directions were given to the judges:

> "You will hear a series of pairs of tapes. The tapes are of speech samples. The members of each pair are of the same person. First, one of a pair will be presented, and then the

other. You are to make a decision as to which speech sample sounds better, the one presented first or the one presented second. Consider pronunciation only--not grammar or vocabulary. Make a quick decision. Then place a tally mark in the appropriate square. (If you think the one presented second sounds better, place tally mark in the second square.) We will do two pairs for practice."

After the two practice pairs of tapes were played, the judging session began, the pairs of tapes being presented in random order and the pre- and post-members of each pair having been selected randomly.

5. Analysis of Data

The data obtained from this procedure consisted of 145 judgements--one judgement for each of 29 subjects from each of five judges. This number of judgements could then be used in comparing:

(A) the trained subjects with the control subjects, and

(B) the subjects trained in the group situation with the subjects trained in the individualized situation.

The number of post-tests judged better could be analyzed, to answer the questions:

(A) Do the members of the training group receive more post-tests judged better than do the members of the control group?

(B) Is there a difference in the number of post-tests judged better, between those trained by the group method and those trained by the individualized method?

The null hypothesis to be retained or rejected can be stated as follows:

HO: (A) There is no significant difference between the training group and the control group in the number of post-tests judged better.

HO: (B) There is no significant difference between subjects trained in the group situation and subjects trained in the individualized situation, in regard to post-tests judged better.

The alternate hypothesis corresponding to HO (A) is as follows:

H_a: Members of the training group receive more "better" judgements on the post-tests than do members of the control group.

In addition to the alternate hypothesis, the following question is being asked: Is there a difference between scores of subjects receiving group training and scores of subjects receiving individualized training? This question corresponds to the second null hypothesis, HO (B).

6. Results

To test these hypotheses and answer the questions the chi-square statistics were used. Chi-square determines whether observed frequencies (in this case the number of occurrences of judges rating post-tape better than pre-tape) differ from expected frequencies. The .05 level was selected as the criterion of significance.

The matrices appear below, in Tables 1 and 2. Table 1 presents the data upon which the training group and the control group were compared on improvement. Table 2 presents the data upon which the two training groups were compared with the control group. Because of small frequencies, the columns for occurrences of 0, 1, and 2 "better" judgements were collapsed into one column. Similarly, the occurrences of 2, 3, and 4 "better" judgements were collapsed.

TABLE 1. Matrix of Frequencies:
Judgements for Training Group and Control Group

Frequencies of Judges Rating Post-Tape Better

	0 - 2	3 - 5	Total
Training Group	4	16	20
Control Group	4	5	9
	8	21	29

X^2 (df=1) = 1.850, .10<p".20, null hypothesis retained, difference not significant. Yeates continuity corrections was used (Downie and Heath, 1974).

The null hypothesis is retained. There is no difference between the training and the control groups, in proportion of post-tests judged better.

TABLE 2. Matrix of Frequencies:
Judgements for Two Training Groups and Control Group

Frequencies of Judges Rating Post-Tape Better

	0 - 2	3 - 5	Total
Group Training	2	10	12
Individualized Training	2	6	8
No Training	4	5	9
	8	21	29

X^2 (df=2) = 1.9776, .30<p".50, null hypothesis retained, difference not significant.

The null hypothesis is retained. There is no difference among the three groups in the frequency of post-tapes being rated better.

To test whether judges have differential effects on measures of improvement, that is, do judges judge differently, the following formula was used:

$$X^2 = (r-1)\ \frac{[r\ y^2 - y^2]}{ry - y^2}$$

where r = number of judges
y = frequencies

X^2 (df=4) = 2.174, .50<p<.70, null hypothesis is retained.

The results show no lack of inter-judge reliabiliy.

7. Conclusions

The results of this study give no indication that differences in pronunciation scores between trained and untrained subjects are due to anything but chance factors. They also indicate that group training produces results that do not differ from that of individualized training. Since the sample was small and the training period short, the results of this study are not considered definitive. Further research should be undertaken. The method used here would be useful, with the following modifications:

(1) A larger sample should be used.
(2) The training period should be extended.
(3) The study could be limited to comparing only one training group to a control group.

8. Further Data Analysis

After the data were analyzed, another question arose: Did the entire set of subjects, trained and untrained, show improvement in pronunciation over the

eight week period? It was hypothesized that for the entire sample the frequencies of post-test "better" judgements would be greater than the frequencies of pre-test "better" judgements. To test this hypothesis, the chi-square statistic was used. The .01 level was selected as the criterion of significance. The table appears below. Column O represents observed judgements, and Column E represents expected judgements. The rows represent observed and expected post-tests and pre-tests judged "better."

TABLE 3. Comparative Frequencies of Pre-Tests and Post-Tests Judged Better for all Subjects Taken Together

	Observed	Expected
Post-test judged better	95	72.5
Pre-tests judged better	50	72.5
	145	145

χ^2 (df-1) = 13.96, $p<.001$, null hypothesis rejected, difference is significant at the .001 level.

The difference between post- and pre-test scores is significant at the .001 level. The total sample, trained and untrained, made significant improvement in pronunciation over the eight week period.

9. Discussion

The results of this study, although not conclusive, seem to support the idea that improvement in pronunciation occurs but does not necessarily depend on formal training. The question arises, what constitutes training? Perhaps non-native speakers, through everyday commerce with native speakers, train themselves and are trained by others, unaware that any training is taking place. Inadvertent imitation and self-correction are probably taking place, and these activities could, in a sense, be called training. In a related

study, Lee, et al (1970) reported that there is a difference in arousal level between conversation and formal drill. Perhaps it is the social situation rather than the classroom which can be relied on to move the non-native speaker toward better speech. It is not recommended here that classroom pronunciation activities be abandoned altogether. Certainly the student of a second language deserves to be instructed in the phonological system of the target language. What is being recommended is that hopes for marked improvement should be realistic. The pronunciation of a second language is a complex task and seems to depend on many factors, such as age of acquisition, motivation, and perhaps aptitude. Are we resistant to change in our speech because we fear loss of identity? Is our ability (or willingness) to change our pronunciation influenced by the extent to which we are able to empathize with others? These are ideas suggested by Stevick (1976) citing such studies as those of A. Z. Guiora, which have indicated that one predictor of pronunciation accuracy is the empathy factor. Hill (1970) points out that cultural groups vary in the degree to which phonation marks their ethnic identity. Presumably those with less focus on phonation as a sign of ethnic identity would tend to be less resistant to change.

Another cause for faulty pronunciation would be that the student who has learned English as a second language in his native country may have received a poor model of pronunciation from his original instructors, themselves non-native speakers of English. Thus, he has not only the phonological system of his own language to interfere but also perhaps years of practicing erroneous pronunciation. Changing this to good pronunciation presents a difficult task to the ESL instructor. The field of ESL awaits tested and proved methods for pronunciation training. It is suggested here that teaching methods should be evaluated objectively through the use of pre- and post-training tests and with control groups for comparison, before they are advocated as being effective.

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